

8. (Twice Amended) Probe Card Assembly, comprising:

a probe card having a first surface, a second surface and a plurality of contact terminals on the first surface thereof;

an interposer having a first surface, a second surface, a second plurality of resilient contact structures extending from the second surface thereof and a first plurality of resilient contact structures extending from the first surface thereof; and

a space transformer having a first surface, a second surface, a plurality of contact pads disposed on the second surface thereof, and a third plurality of resilient contact structures extending from the first surface thereof;

wherein:

the second plurality of resilient contact structures effect a pressure connection with the contact terminals of the probe card; and

the first plurality of resilient contact structures effect a pressure connection with the contact pads of the space transformer.

13. (Twice Amended) Probe Card Assembly, according to claim 8,

wherein:

one or more of the first plurality of resilient contact structures are a composite structure, wherein the [resilient contact structure] composite structure includes a resilient material of sufficient dimension to act resiliently, the resilient material connected to a precursor material, the precursor material having a springable shape but not having material properties and dimensions to act resiliently in the absence of the connected resilient material.

14. (Twice Amended) Probe Card Assembly, according to claim 8,

wherein:

3 one or more of the second plurality of resilient contact structures are a  
4 composite structure, wherein the [resilient contact structure] composite structure  
5 includes a resilient material of sufficient dimension to act resiliently, the resilient  
6 material connected to a precursor material, the precursor material having a  
7 springable shape but not having material properties and dimensions to act  
8 resiliently in the absence of the connected resilient material.

1 17. (Amended) Probe Card Assembly, according to claim 15, wherein the  
2 means for urging the space transformer comprises:  
3 a mounting ring; and  
4 a plurality of screws holding the mounting ring to the front mounting  
5 plate with the space transformer captured therebetween.

1 23. (Twice Amended) Probe Card Assembly, according to claim 22,  
2 wherein the means for adjusting the [planarity] orientation of the space transformer  
3 comprises:  
4 a plurality of differential screws, each including an outer differential  
5 screw element and an inner differential screw element, acting upon the second  
6 surface of the space transformer.

1 24. (Twice Amended) Probe Card Assembly, according to claim 23, further  
2 comprising:  
3 a pivot sphere disposed on an end of [a first] one of the inner  
4 differential screw elements.

1 26. (Twice Amended) Probe Card Assembly, according to claim 22,  
2 wherein the means for adjusting the [planarity] orientation of the space transformer  
3 comprises:

4 an actuator, responsive to a computer, acting upon the space  
5 transformer.

1 30. (Twice Amended) Probe Card kit, comprising:  
2 a space transformer having a first surface, a second surface, a plurality  
3 of contact pads disposed on the second surface thereof, and a plurality of contact  
4 structures connected to the first surface thereof, said space transformer adapted in  
5 use [for] such that contact regions of the [first] plurality of contact structures [making]  
6 make pressure contacts with a corresponding plurality of contact areas on a  
7 semiconductor wafer; and

8 an interposer having a first surface, a second surface, a first plurality of  
9 resilient contact structures extending from the first surface thereof, said interposer  
10 adapted in use [for] such that contact regions of the first plurality of resilient contact  
11 structures [making] make pressure connections with the plurality of contact pads on  
12 the second surface of the space transformer, the interposer having a second plurality  
13 of resilient contact structures extending from the second surface thereof, said  
14 interposer adapted in use for contact regions of the second plurality of resilient  
15 contact structures making pressure connections with a plurality of terminals on a  
16 probe card.

1 32. (Twice Amended) Probe Card Kit, according to claim 30, wherein:  
2 the second plurality of resilient contact structures are disposed at a first  
3 pitch on the [first] second surface of the interposer;

4 the first plurality of resilient contact structures are disposed at a second  
5 pitch on the [second] first surface of the interposer; and  
6 the first pitch is substantially the same as the second pitch.

1 33. (Twice Amended) Probe Card Assembly, according to claim 30,  
2 wherein:

3 the contact pads are disposed at a first pitch on the second surface of the  
4 space transformer;

5 the plurality of contact structures are disposed at a second pitch on the  
6 first surface of the space transformer;

7 the second plurality of resilient contact structures are disposed at the  
8 first pitch on the [first] second surface of the interposer;

9 the first plurality of resilient contact structures are disposed at the first  
10 pitch on the [second] first surface of the interposer; and

11 the first pitch is greater than the second pitch.

1 35. (Twice Amended) Probe Card Assembly, according to claim 8, wherein  
2 at least some of the resilient contact [structure] [comprises] structures comprise:

3 a composite interconnection element having an end; and  
4 a pre-fabricated tip structure joined to the end of the composite interconnection  
5 element.

1 43. (Twice Amended) An interposer comprising:  
2 a substrate having first and second opposed sides with a first set of  
3 terminals on the first side and a second set of terminals on the second side;  
4 a first set of resilient contact structures, each having a portion  
5 connected to a respective one of the terminals of the first set of terminals, a contact

6 region distant from the substrate, and an elongate section extending from the  
7 portion to the contact region, the elongate section resiliently bending upon  
8 depression of the contact region towards the substrate, wherein the contact [region]  
9 regions of two adjacent resilient contact structures are spaced differently than the  
10 terminals of the adjacent resilient contact structures and wherein respective ones of  
11 the second set of terminals are coupled to corresponding ones of the first set of  
12 terminals; and  
13 a second set of resilient contact structures, each having a portion  
14 attached to a respective one of the terminals of the second set of terminals, a contact  
15 region distant from the substrate, and an elongate section extending from the  
16 portion to the contact region, the elongate section resiliently bending upon  
17 depression of the contact region towards the substrate.

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1 45. (Twice Amended) Probe Card Assembly, comprising:  
2 a probe card having a first surface, a second surface and a plurality of  
3 contact terminals on the first surface thereof;  
4 a space transformer having a first surface, a second surface, a plurality  
5 of contact pads disposed on the second surface thereof, and a first plurality of  
6 resilient [freestanding] contact structures mounted adjacent to and extending from  
7 the first surface thereof;  
8 wherein the plurality of contact pads are connected to the plurality of  
9 contact terminals of the probe card.

10 46. (Amended) Probe Card Assembly, according to claim 45, wherein the  
11 means for adjusting the [planarity] orientation of the space transformer comprises:

3 a plurality of differential screws, each including an outer differential  
4 screw element and an inner differential screw element, acting upon the second  
5 surface of the space transformer.

C12 48 41  
1 51. (Amended) Probe Card Assembly, according to claim 50, wherein the  
2 means for adjusting the [planarity] orientation of the space transformer comprises:  
3 an actuator, responsive to a computer, acting upon the space  
4 transformer.

C13 48  
1 52. (Twice Amended) Probe Card Assembly, according to claim 45,  
2 wherein:  
3 the contact pads are disposed at a first pitch on the second surface of the  
4 space transformer;  
5 the first plurality of resilient contact structures each having a contact  
6 region, the contact [region] regions disposed at a second pitch; and  
7 the first pitch is greater than the second pitch wherein the first pitch is  
8 a shortest distance between any two adjacent contact pads and the second pitch is a  
9 shortest distance between any two adjacent contact structures.

C14 48 48  
1 58. (Amended) Probe Card Assembly, according to claim 57, wherein the  
2 means for adjusting the [planarity] orientation of the space transformer comprises:  
3 a plurality of differential screws, each including an outer differential  
4 screw element and an inner differential screw element, acting upon the second  
5 surface of the space transformer.

50 49  
1 59. (Amended) Probe Card Assembly, according to claim 58, wherein the  
2 means for adjusting the [planarity] orientation of the space transformer comprises: